

Notice of Allowability

Application No.

10/727,317

Examiner

Taylor Victor Oh

Applicant(s)

ICHIDA, AKITO

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/17/2006.
2. ☒ The allowed claim(s) is/are 7-12, renumbered as claims 1-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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Reasons of Allowance

The Status of Claims

Claims 7-12 are pending.

Claims 7-12 have been allowed.

Amendment to the Specification

It is noted that the phrase “ **Express Mail No. EL 961 107 929 US** at the top of the specification page 1 is to be removed ; U.S. Application Numbers “10727317”

should be inserted at the top of the specification , the abstract ,and the claim section.

In the specification on page 6, lines 1-2, the chemical terms “ Tirtiary butyl hypochloride” is replaced with the chemical terms “Tertiary butyl hypochlorite.”

I. The following is an examiner's statement of reasons for allowance:

- The close prior art to the current invention are Grella et al (J. Med. Chem. P. 4726-4737, 2000) , Metzger (U.S. 3,972,910), and Kober et al (U.S. 3,523,964).

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Grella et al discloses the preparation of 3-chloro-5-nitrotoluene in the following procedures:

2-Chloro-4-methyl-6-nitroaniline (23). A mixture of 4-methyl-2-nitroaniline (50.0 g, 329 mmol) and *N*-chlorosuccinimide (70.3 g, 526 mmol) was refluxed in acetonitrile (200 mL) overnight. Removal of acetonitrile under reduced pressure, afforded a dark red crude oil mixture. The mixture was purified by flash chromatography (eluent: hexane/ethyl acetate 7:1–6:1) to obtain a dark orange solid, 17.6 g, 29%. Mp: 55–58 °C. ¹H NMR (CDCl₃): δ 2.28 (s, 3H), 6.41 (s, 2H), 7.38 (s, 1H), 7.90 (s, 1H).

3-Chloro-5-nitrotoluene (24). A solution of 23 (17.5 g, 94.4 mmol) in ethanol (100 mL) was allowed to cool to 0 °C and concentrated sulfuric acid was added (20 mL). Sodium nitrite (40 wt % solution in water, 13.0 g, 189 mmol) was added dropwise to the solution, and the reaction mixture was allowed to warm to room temperature and stirred for 30 min. Then the mixture was refluxed until the evolution of nitrogen gas ceased. The reaction mixture was concentrated under reduced pressure and then diluted with water (100 mL) and extracted with ethyl acetate (4 × 75 mL). The combined organic fractions were washed with brine, dried over anhydrous MgSO₄, and the solvent was removed under reduced pressure to afford a dark red oil. The product was purified by flash chromatography (eluent: hexane/ethyl acetate 7:1) to give an orange solid, 11.2 g, 69%. Mp: 55–57 °C. ¹H NMR (CDCl₃): δ 2.46 (s, 3H), 7.50 (s, 1H), 7.94 (s, 1H), 8.03 (s, 1H).

Metzger teaches that 2,4- and/or 2,6-toluene diamine can be chlorinated by using *N*-chlorosuccinimide or *t*-butylhypochlorite.

Kober et al teaches a process for preparing organic isocyanates by reacting an organic nitrocompound with carbon monoxide in the presence of a catalyst containing nickel and tin.

However, the instant invention differs from the prior art in that the *t*-butylhypochlorite chlorinating agent is used in the claimed process; and the reaction mixture is maintained at a temperature of 40 to 50 °C during the deamination process; furthermore, Ichida's Declaration

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has shown an unexpected result of using the t-butylhypochlorite chlorinating agent in comparison with N-chlorosuccinimide chlorinating agent in producing 3-chloro-5-nitrotoluene: the yield of the resultant production by using N-chlorosuccinimide is 2 % , whereas the yield of the resultant production yield by using t-butylhypochlorite is 80 % (see specification page 6). In addition, unless all limitations of the claims are met, there is no prior art rejection. See In re Zurko 59 USPQ 2d 1690 (Fed Cir. 1991) and In re Lee, 61 USPQ 1430 (Fed Cir. 1991).

Therefore, the claimed invention would not have been obvious to the person with an ordinary skill in the art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning the communication after allowance such as sending all post-allowance correspondence should be directed to " Box Issue Fee" or faxed directly to PUBS at 703-305-8755. This will expedite the process of these papers.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Taylor Victor Sh
3/6/06